

WOOD RIVER LEVEE SYSTEM RECONSTRUCTION,
ILLINOIS, POST AUTHORIZATION CHANGE REPORT

COMMUNICATION

FROM

THE ASSISTANT SECRETARY, ARMY,
CIVIL WORKS, THE DEPARTMENT OF
DEFENSE

TRANSMITTING

THE WOOD RIVER LEVEE SYSTEM RECONSTRUCTION, ILLINOIS,
POST AUTHORIZATION CHANGE REPORT



JULY 8, 2013.—Referred to the Committee on Transportation and
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DEPARTMENT OF THE ARMY
OFFICE OF THE ASSISTANT SECRETARY
CIVIL WORKS
108 ARMY PENTAGON
WASHINGTON DC 20310-0108

MAY - 7 2013

Honorable John A. Boehner
Speaker of the House
of Representatives
U.S. Capitol Building, Room H-232
Washington, D.C. 20515-0001

Dear Mr. Speaker:

The Secretary of the Army recommends modifying the cost of the Wood River Levee System Reconstruction, Madison County, Illinois, project that was authorized by Section 1001(20) of the Water Resources Development Act (WRDA) of 2007. Section 1001(20) authorized reconstruction of features of the existing project, which was authorized by the Flood Control Act of 1938. The Flood Control Act of 1938 authorized a project to protect against a Mississippi River flood with a 52-foot stage on the St. Louis, Missouri gage. The river currently has less than a 0.2-percent chance of exceeding this stage in any given year, which equates to approximately a 500-year frequency interval. The recommended cost increase is necessary because the estimated project first cost exceeds the maximum project cost allowed by Section 902 of the WRDA of 1986, as amended. The enclosed report of the Director of Civil Works, Army Corps of Engineers, dated February 11, 2013, explains and supports the cost increase and includes other pertinent documents. The enclosed documents demonstrate that this flood risk management project remains economically justified and environmentally acceptable.

Section 1001(20) authorized the reconstruction or replacement of 38 gravity drains, 26 closure structures (including abandoning three railroad closure structures that are no longer used), and seven pump stations. When completed, this work would restore the existing project's ability to reduce urban flood damages in Madison County, which is across the Mississippi River from the city of St. Louis. Section 1001(20) authorized the work at a total first cost of \$17,220,000, with a Federal cost share of \$11,193,000 and a non-Federal cost share of \$6,027,000. This total first cost equates to \$19,870,000 at current (October 2012) price levels. The current maximum authorized cost, adjusted for modifications up to 20 percent and cost index changes in accordance with Section 902, as amended, is \$23,414,000.

The project cost has increased primarily because many project features were more severely deteriorated than anticipated in 2007 and have required replacement rather than the planned reconstruction. Based on an October 2012 price level, the estimated project first cost is \$25,672,000, which includes \$4,873,000 for remaining work. In accordance with Section 103(a) of the WRDA of 1986, as amended, the Federal share of the project first cost would be \$16,687,000 and the non-Federal share would be \$8,895,000. The Wood River Levee and Drainage District, the non-Federal

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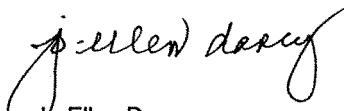
cost sharing sponsor, will be responsible for the operation, maintenance, repair, replacement, and rehabilitation (OMRR&R) of the project after construction. The cost of OMRR&R is currently estimated at \$175,000 per year.

The project continues to be economically justified based on reducing urban flood damages. At the October 2012 price level, a 3.75 percent discount rate, and a 50-year period of analysis, the estimated total equivalent average annual cost would be \$1,337,000 and total equivalent average annual benefits would be \$5,066,000, which includes all OMRR&R costs. Net benefits are estimated at \$3,729,000 and the benefit-to-cost ratio would be 3.8 to 1.

A Finding of No Significant Impact (FONSI) was signed for the authorized project on March 23, 2006 based on the Wood River Levee System, Madison County, Illinois, Final General Reevaluation Report and Environmental Assessment dated March 2006. There have been no changes to the project since the FONSI was signed that warrant additional environmental compliance actions. The authorized project does not require any compensatory mitigation. The project continues to be environmentally acceptable.

The Office of Management and Budget (OMB) advises that there is no objection to the submission of the report to Congress and concludes that the report recommendation is consistent with the policy and programs of the President. OMB also advises that should Congress increase the project authorization for construction, the project would need to compete with other proposed investments in future budgets. A copy of OMB's letter, dated May 4, 2013, is enclosed. I am providing a copy of this transmittal and the OMB letter to the Subcommittee on Water Resources and Environment of the House Committee on Transportation and Infrastructure, and the Subcommittee on Energy and Water Development of the House Committee on Appropriations. I am providing an identical letter to the President of the Senate.

Very truly yours,



Jo-Ellen Darcy
Assistant Secretary of the Army
(Civil Works)

Enclosures

4 Enclosures

1. Report of the Director of Civil Works, February 11, 2013
2. OMB Clearance Letter, May 4, 2013
3. Limited Reevaluation Report, August 23, 2012
4. Executive Summary for the Office of the Parliamentarian



**DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS
441 G STREET, NW
WASHINGTON, D.C. 20314-1000**

FEB 11 2013

CECW-MVD

MEMORANDUM FOR THE ASSISTANT SECRETARY OF THE ARMY (CIVIL WORKS)

SUBJECT: Wood River Levee System Reconstruction, Illinois, Post Authorization Change Report (PACR)

1. Reference:

- a. Memorandum CEMVD-PD-SP, 11 September 2012, Wood River Levee System Reconstruction, Madison County, Illinois, Flood Reduction Project, Post Authorization Change Report.
- b. Memorandum ASA(CW), 17 December 2012, Wood River Levee System Reconstruction, Madison County, Illinois, Flood Reduction Project, Post Authorization Change Report, 23 August 2012.
- c. CWPM 12-001 Methodology for Updating Benefit to Cost Ratios for Budget Development, 8 March 2012.

2. Purpose: To provide the enclosed updated Wood River Levee System Reconstruction, Illinois, Flood Risk Management Project Post Authorization Change Report (PACR) to the Assistant Secretary of the Army (Civil Works) for review and approval in accordance with the 17 December 2012 ASA(CW) memorandum. The PACR documents the need to modify the project authorization to increase the authorized cost to \$25,672,000.

3. Work remaining: The project is currently in the construction phase and approximately 95% of the total project is physically complete. The remaining work includes minor repairs at 22 gravity drainage structures; replacement of doors at six pump stations; gate installation at one pump station; electrical work at two pump stations; fencing; partial replacement of the monolith at one closure structure; rehabilitation of two pumps at the East Alton #1 pump station; and all O&M manuals.

4. Background:

- a. The Wood River Levee System Reconstruction, Illinois, project was authorized by the Water Resources Development Act (WRDA) of 2007 at a cost of \$17,220,000. The original Wood River Drainage and Levee District project, authorized by the Flood Control Act of 1938, provides flood risk reduction against a 52 foot Mississippi River stage on the St. Louis gage, which has a current expected annual exceedance probability of less than 0.2% (greater than

CECW-MVD

SUBJECT: Wood River Levee System Reconstruction, Illinois, Post Authorization Change Report (PACR)

500-year event). The WRDA 2007 authorized reconstruction of several features of the project. The authorized reconstruction project consists of the rehabilitation, reconstruction, or replacement of 38 gravity drainage structures, 26 closure structures, and 7 pump stations.

b. The Project Partnership Agreement with the non-federal partner, the Wood River Drainage and Levee District, was executed on 30 June 2008. Federal funds in the amount of \$15,174,000 were appropriated in Fiscal Years 2009, 2010, 2011 and 2012 to initiate and continue project construction. The project is approximately 95% physically complete. The remaining construction is estimated to cost \$4,873,000.

c. At 2012 October price levels, the estimated total project first cost is \$25,672,000. The Corps Cost Engineering Directory of Expertise completed its review of the project cost and certified it on 22 August 2012. The federal share of the estimated total project first cost is \$16,686,800 and the non-federal share is estimated at \$8,985,200. The non-federal partner is responsible for the operation maintenance, repair, replacement and rehabilitation of the project after construction, at a cost currently estimated at \$174,600 per year.

d. In response to your memorandum, dated 17 December 2012, a economic analysis was completed to confirm that there have been no substantive changes to the project's sources of benefits since the approval of the General Reevaluation Report in 2006. Additionally, only approximately 15% of the cost of the project remains to be obligated. The updated benefits and associated benefit-to-cost ratio (BCR) was computed utilizing an Economic Update Methodology that estimates current benefits based on changes in development and changes in price level. This methodology produces a more timely economic analysis (above a Level One update) and was deemed acceptable based on guidance received from the ASA(CW)'s office. A summary of the economic update is enclosed. By utilizing this methodology, the benefits of this project are now estimated to be \$5,066,000, which result in a current BCR of 3.8 at the current federal discount rate of 3.75%.

e. In addition, I am enclosing with the 2013 January PACR the final documentation of review findings dated 2013 January which documents the policy and legal review, the MSC endorsement memorandum, completed Project Study Issue Checklist, project summary, and the project slides as requested in your memorandum.

5. Conclusion: The Wood River Levee System Reconstruction, Illinois, PACR was prepared in accordance with guidance provided by ASA(CW) staff, 2013 January, to document the increases in project cost and recommend an increase in the authorized project cost. The Corps policy compliance review of the PACR has been completed and there are no unresolved policy issues.

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SUBJECT: Wood River Levee System Reconstruction, Illinois, Post Authorization Change Report (PACR)

6. Recommendation: I recommend that the requested policy waiver be granted and that the enclosed PACR be transmitted to Congress as a basis for increasing the authorized cost of the Wood River Levee System Reconstruction, Illinois, Flood Risk Management Project to \$25,672,000 (2012 October price level).



STEVEN L. STOCKTON, P.E.
Director of Civil Works

Encl



EXECUTIVE OFFICE OF THE PRESIDENT
OFFICE OF MANAGEMENT AND BUDGET
WASHINGTON, D.C. 20503

May 3, 2013

The Honorable Jo-Ellen Darcy
Assistant Secretary of the Army (Civil Works)
108 Army Pentagon
Washington, DC 20310-0108

Dear Ms. Darcy:

As required by Executive Order 12322, the Office of Management and Budget completed its review of your post authorization change report for the Wood River Levee System Reconstruction Project, Illinois. Based on our review, we conclude that this project is consistent with the policy and programs of the President.

The Office of Management and Budget does not object to you submitting this report to the Congress. When you do so, please advise the Congress that the project would need to compete with other proposed investments in future Budgets.

Sincerely,

A handwritten signature in black ink, appearing to read "John Pasquantino".

John Pasquantino
Deputy Associate Director
Energy, Science, and Water

**WOOD RIVER LEVEE SYSTEM RECONSTRUCTION, ILLINOIS
FLOOD RISK REDUCTION PROJECT
LIMITED REEVALUATION REPORT**

This document contains neither recommendations nor conclusions of the U.S. Army Corps of Engineers. It has been reviewed by the Illinois Department of Natural Resources and the Illinois Department of Transportation. This document does not contain recommendations or conclusions of either agency.



JANUARY 2013



**US Army Corps
of Engineers**
St. Louis District®

1222 SPRUCE STREET
ST. LOUIS, MISSOURI 63103-28

Executive Summary

This Limited Reevaluation Report (LRR) will address the cost increase in the Wood River Levee System Reconstruction, Illinois, project. Construction costs are estimated to exceed the maximum project cost limit according to Section 902 of the Water Resources Development Act (WRDA) of 1986, as amended. The project was authorized by Section 1001 of WRDA 2007. This report intends to notify Congress of cost increases and recommends that the project's authorization be modified in order to complete construction.

The project's cost estimate has increased from the 2007 authorized cost of \$17,220,000 (which equates to \$19,870,000 at October 2012 price levels) to \$25,672,000. The increase in estimated project costs at constant 2012 price levels is \$5,802,000.

Project costs increased primarily due to the realization that many project features originally planned for rehabilitation were in a more deteriorated state than anticipated and required replacement.

The project is currently in the construction phase. Approximately 95 percent of the total project is physically complete at this time. Remaining work includes minor repairs (hand rails, etc.) at 22 gravity drainage structures, gate installation and partial replacement of the monolith at one closure structure, rehabilitation of two pumps at East Alton #1 pump station, and minor roofing, tuck pointing, and fencing on six pump stations and the completion of the electrical work at one pump station. Additionally, although not explicitly identified in the GRR, several of the pump station doors are deteriorated and in need of replacement. This additional work is included in the total project cost estimate and the estimate of remaining costs.

Wood River Levee System Reconstruction, Illinois

LIMITED REEVALUATION REPORT

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**Wood River Levee System Reconstruction, Illinois
LIMITED REEVALUATION REPORT**

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- Appendix A Economic Reevaluation
- Appendix B Cost Estimating
- Appendix C Computation of FY12 902 Limit

Wood River Levee System Reconstruction, Illinois LIMITED REEVALUATION REPORT

1.0 PURPOSE

This Limited Reevaluation Report (LRR) will address the cost increase in the Wood River Drainage and Levee District, Illinois, Reconstruction project. Construction costs are estimated to exceed the maximum project cost limit according to Section 902 of the Water Resources Development Act of 1986 (WRDA86), as amended. The project was authorized by Section 1001 of the Water Resources Development Act of 2007 (WRDA07, Public Law 110-114). This report intends to notify Congress of cost increases and recommends that the project's authorization be modified in order to complete construction.

2.0 AUTHORIZED PROJECT

2.1 DESCRIPTION

Wood River Drainage and Levee District (Levee District) lies in southwestern Illinois, on the left bank of the Mississippi River flood plain, within Madison County, Illinois, between river miles 195 and 203 above the Ohio River. The levee district is protected by an urban design levee, across the Mississippi River from St. Louis and St. Charles counties in Missouri. This system includes approximately 21 miles of main line levee, 170 relief wells, 26 closure structures, 41 gravity drains and 7 pump stations. Only 163 wells are included in the reconstruction project as 7 wells are 8-inch diameter PVC wells, installed in 1985 as a part of the Wood River Alterations, Design Memorandum No. 16; L&D 26(R) and are not included as part of the replacement/rehabilitation alternatives. The study area lies in the Mississippi River flood plain of Madison County, Illinois, just upstream of the city of East St. Louis. There are approximately 13,700 acres of bottomland within the District and 4,700 acres of hill land tributary to the levee units.

The study area is located in both the Illinois 12th and 19th Congressional Districts, which are currently held by Congressman Jerry Costello and John Shimkus respectively.

The original Wood River Drainage and Levee District project, authorized by the Flood Control Act of 1938, provides flood risk reduction against a 52 foot Mississippi River stage on the St. Louis gage, which has a current expected annual exceedance probability of less than 0.2% (greater than 500-year). WRDA07 authorized reconstruction of portions of the project. The authorized project consists of the rehabilitation, reconstructing or replacing 38 gravity drainage structures, 26 closure structures, and 7 pump stations.

The Local Cooperation Agreement (LCA) with the non-Federal sponsor, the Wood River Drainage and Levee District (D&LD), was executed on June 30, 2008. Funds to initiate construction were appropriated in Fiscal Year (FY) 2009. As of July 2012, project construction was 95 percent physically complete. Plate 1 includes an overall project map.

2.2 LOCAL COOPERATION

The items of local cooperation are identified in the 2006 General Reevaluation Report and are consistent with standard local cooperation requirements, including a 35% cost-share.

2.3 CURRENT STATUS

The project is currently in the construction phase. Approximately 95 percent of the total project is physically complete.

The rehabilitation or replacement of all 38 gravity drainage structures is essentially complete. Remaining work associated with the gravity drainage structures includes minor repairs (hand rails, etc.) at 22 structures.

All work associated with the closure structures is complete with the exception of the Broadway closure structure (CS-16). At CS-16, work on the closure structure monolith has been suspended, and the fabrication of the gate is complete. The gate is planned to be stored on WRLD property until such time as the authorization limit is raised for the project, the monolith completed and the gate reinstalled.

Pump Station reconstruction and replacement is complete except for the following: rehabilitation of two pumps at East Alton #1; roofing at East Alton #2, Wood River, Rand Avenue, Hawthorne, Lakeside, and Home Garden; tuck pointing at East Alton #2, Wood River, Rand Avenue and Hawthorne; fencing at Wood River and Rand Avenue; and electrical work (motor control center, lighting panel board, and electric unit heaters) at Rand Avenue.

Additionally, although not explicitly identified in the GRR, several of the pump station doors are deteriorated and in need of replacement. These doors are essential for maintenance and operation activities. The District has determined that the doors have been properly maintained and that the deterioration is purely due to age. Therefore the replacements may be undertaken as part of the reconstruction project. The deteriorated doors are identified as follows: the personnel doors and frames at East Alton No. 2 and Wood River Pump Stations; the double personnel/maintenance access doors at Hawthorne and Rand Avenue Pump Stations; the personnel/maintenance access doors at the Lakeside and Homegarden Pump Stations; and the overhead access doors at East Alton No. 2 and Wood River. This additional work is estimated to cost \$20,400.

The total cost of remaining work is estimated to be \$4,873,000.

A Project Partnership Agreement (PPA) Amendment will be executed to update the amounts listed in Section IX of the current Local Cooperation Agreement (LCA), which discusses the 902 limit.

3.0 REMAINING PROJECT SCHEDULE

The project is currently scheduled for completion in 2014 as shown in Figure 1.

Figure 1. Remaining Project Schedule

Activity	Start Date	End Date
Completion of two high priority suspended projects	15 Aug 12	31 Dec 12
Execute PPA amendment		30 Sep 13
Completion of remaining construction contracts	1 Oct 13	30 Sep 14
Project Closeout	1 Oct 14	30 Sep 15

4.0 AUTHORIZATION

Congress authorized the Wood River Levee System Reconstruction, Madison County, Illinois, project in Section 1001 of the Water Resources Development Act of 2007 (Public Law 110-114), which reads as follows:

*TITLE I - WATER RESOURCES PROJECTS
SEC. 1001. PROJECT AUTHORIZATIONS.*

(20) WOOD RIVER LEVEE SYSTEM RECONSTRUCTION, MADISON COUNTY, ILLINOIS.—The project for flood damage reduction, Wood River Levee System Reconstruction, Madison County, Illinois: Report of the Chief of Engineers dated July 18, 2006, at a total cost of \$17,220,000, with an estimated Federal cost of \$11,193,000 and an estimated non-Federal cost of \$6,027,000.

Based on the authorized project cost, the FY12 902 limit for the Reconstruction portion of the Wood River D&LD project is \$23,414,000. The 902 limit was calculated using the Section 902 Limit Tool that was certified by HQUSACE in November 2010. See *Appendix C – Computation of FY12 902 Limit* for further 902 Limit computation details.

5.0 FUNDING SINCE AUTHORIZATION

Table 1 below summarizes the history of federal funding of this project, by fiscal year, since authorization.

Table 1. Federal Funding History

Fiscal Year	Appropriations Category	Fiscal Year Allocation	Cumulative Allocation
2009	Construction General	\$7,542,000	\$7,542,000
2010	Construction General	\$4,978,000	\$12,520,000
2011	Construction General	\$2,232,000	\$14,751,000
2012	Construction General	\$693,000	\$15,174,000 ¹
¹ Pending revocation of \$270,000 in ARRA funds.			

6.0 CHANGES FROM AUTHORIZED PROJECT

6.1 PROJECT SCOPE

There have been no changes to the project scope since the 2006 GRR.

6.2 PROJECT PURPOSES

The authorized project purpose is flood risk management. There has been no change to the project purpose since authorization.

6.3 LOCAL COOPERATION

There have been no changes in the required items of local cooperation.

6.4 LOCATION

There have been no changes to the location of the project or project features since authorization.

6.5 DESIGN CHANGES

There have been no significant design changes.

6.6 COST CHANGES

The total project cost cited in the March 2006 GRR for the reconstruction project was \$16,740,200 (October 2005 price levels). When WRDA 2007 was prepared, this cost was adjusted for then-current price levels to \$17,220,000. This authorized cost equates to \$19,870,000 in October 2012 price levels.

For the purpose of tracking cost changes by feature, the feature costs described in the 2006 GRR will be used as the baseline. Table 2 shows these costs updated to October 2012 price levels, the current recommended cost estimates, and the change in the cost estimates. As can be seen in Table 2, the project's current cost estimate has increased to \$25,672,000. The change in costs referenced to constant 2012 price levels is \$5,802,000.

The cost estimate for the remaining work was developed using MII and was based on the latest anticipated scope for each project. Historical cost information from previous Wood River Reconstruction contracts was used when applicable. Contingencies were developed using a risk based method.

The cost estimate for remaining work is \$4,873,000. The St. Louis District has continued project construction while preparing this report; this explains the difference in the cost estimate for remaining work (\$4,873,000) and the change in cost at 2012 price levels (\$5,802,000).

Table 2. Changes in Total Project First Costs

Project Features	Authorized Cost Estimate (Oct 2005 Price Level)	Authorized Cost Estimate (Oct 2012 Price Level) ¹	Recommended Cost Estimate (Oct 2012 Price Level)	Cost Change (Oct 2012 Price Level)	Recommended Cost Estimate (Fully Funded) ¹
Lands and Damages ²	\$0	\$0	\$0	\$0	\$0
Relocations ²	\$0	\$0	\$0	\$0	\$0
Levees & Floodwalls	\$8,114,400	\$9,631,000	\$15,063,000	\$5,432,000	\$15,123,000
Pumping Plants	\$4,427,800	\$5,256,000	\$6,648,000	\$1,392,000	\$6,677,000
Planning, Engineering & Design	\$2,717,800	\$3,226,000	\$3,231,000	\$5,000	\$3,265,000
Construction Management	\$1,480,200	\$1,757,000	\$730,000	(\$1,027,000)	\$736,000
Total Project Costs	\$16,740,200 ²	\$19,870,000	\$25,672,000	\$5,802,000	\$25,802,000

¹The CWCCIS index was used for cost escalation²No additional land or relocations are required for reconstruction features.³\$16,740,200 reflects the breakout used in the GRR and is equivalent to the Oct 2006 Authorized cost of \$17,220,000.

Levees and Floodwalls (+\$5,432,000)

An overall costs increase in Levees and Floodwalls was the result of findings that several structures planned for rehabilitation were more severely deteriorated than originally anticipated. In these cases, the structures were replaced instead of rehabilitated. In all cases, the deteriorated condition of the structures was determined to be the results of age and not any deferred maintenance. The following paragraphs outline some of these situations.

- Closure Rehab – a base contract was awarded to remove, sand blast and evaluate the gates prior to repainting. Modifications were written against each gate to either rehab/repair the gate if possible or condemn and replace it if necessary due to extensive dilapidation. Replacement was deemed necessary in several cases.
- Gravity Drains and gates around the pump stations – These features were thought to be in fair condition prior to rehabilitation based upon other system rehabilitation projects in the area. However, many of the original materials used for fabrication of the sluice gates would be classified as “light duty” and were in a much more deteriorated state than was anticipated. In many instances, these features were found to be inoperable and could not be rehabbed/repaired and required complete replacement.

- Grassy Lake Emergency Gravity Drain repair – A collapsing 72" gravity drain made out of corrugated metal pipe was originally slated to be slipped lined in 2009. But engineering evaluation deemed this to be not feasible due to the deteriorated state of the existing pipe. Contract was awarded in September of 2011 to completely remove the pipe and replace it with reinforced concrete pipe.

Pumping Plants (+\$1,392,000)

These features were thought to be in fair condition prior to rehabilitation based upon other system rehabilitation projects in the area. However as pumps were pulled and evaluated as per the original SOW it was determined that due to their age and condition, in many cases additional repairs were required to bring them back up to the level of operability as per the authorized level of protection of the project.

Planning, Engineering and Design (+\$5,000)

PED costs increased due to the potential for required project modifications.

Construction Management (-\$1,027,000)

Construction Management costs decreased due to efficiencies gained by ARRA funding allowing the award of larger contracts.

6.7 PROJECT BENEFITS

The General Reevaluation Report, which defines the current project, was approved in 2006. The total project benefits in the approved report come from a Design Deficiency component and a Reconstruction component. The Design Deficiency component consisted of relief wells while the Reconstruction component consisted of gravity drain, pump station, and closure structure repairs. This Post Authorization Change (PAC) Report is only concerned with the benefits from the Reconstruction component. The information in table 3 (below) comes directly from the Economic Appendix (B) of the approved report.

Table 3. Project Benefits (Oct 2005)

Reconstruction Component Expected Annual Inundation Damage Reduced and Distributed Wood River Levee System¹							
Levee Reach	Feature	Expected Annual Damage			Probability Net Benefit Exceeds Indicated Amount		
		Total Without Project	Total With Project	Net Benefits	0.75	0.50	0.25
Lower Wood River	Closure Structures	\$1,495,220	\$ 847,840	\$ 647,380	\$ 446,644	\$ 638,652	\$ 879,941
	Gravity Drains	\$1,544,320	\$ 847,840	\$ 696,480	\$ 480,520	\$ 687,090	\$ 926,432
	Pump Stations	\$ 946,260	\$ -	\$ 946,260	\$ 652,849	\$ 933,503	\$1,264,693
East-West Fork	Closure Structures	\$ 405,000	\$ 124,770	\$ 280,230	\$ 193,338	\$ 276,452	\$ 360,758
	Gravity Drains	\$ 362,040	\$ 124,770	\$ 237,270	\$ 163,699	\$ 234,071	\$ 302,458
	Pump Stations	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Upper Wood River	Closure Structures	\$ 602,390	\$ 227,050	\$ 375,340	\$ 258,957	\$ 370,280	\$ 484,110
	Gravity Drains	\$ 570,680	\$ 227,050	\$ 343,630	\$ 237,079	\$ 338,997	\$ 446,314
	Pump Stations	\$ 270,560	\$ -	\$ 270,560	\$ 186,666	\$ 266,912	\$ 393,134
Levee System	Total ²	\$6,221,920	\$2,399,320	\$3,822,600	\$2,645,202	\$3,771,407	\$5,083,290

¹Oct 2005 PL²Average Annual Benefits Reported in GRR are \$25,450 higher than what was accounted for in HEC-FDA individual component tables, but were captured in the total project HEC-FDA table. These benefits were added on to the Levee System Total in this table.

Using an Economic Update Methodology to confirm the benefits calculated for the original report have not significantly changed was deemed appropriate for this report as two LRRs have recently been completed on this same project area (2011 and 2012).

Since the benefits were based on the inundation of the structures and population as of the year 2005, GIS software and Census data were used to evaluate any benefit changes that may have occurred since that time.

The inventory has been largely unaffected by flood events since the approval of the GRR. Even during the flood of 2008, flood fighting helped to prevent any breach and most of the interior flooding occurred in designated ponding areas or in fields.

For the residential benefit category, there are six municipalities within the Wood River Levee System (Alton, East Alton, Hartford, Roxana, South Roxana, and Wood River).

Census data shows there has been a 5.6 percent decrease in total occupied housing within these municipalities from 2000 to 2010 (a 0.56 percent annual decrease). For this analysis, the population decrease is assumed to have occurred at a steady rate. Because the fieldwork for the original economic analysis for the GRR took place in 2005, applying the annual decrease in occupied housing from 2005 to 2012 results in a total decrease of 3.9 percent. This total decrease was applied as the residential “inventory adjustment factor” to estimate the reduction of the residential benefit. Of the value in the original analysis, the residential category made up 40 percent of the total benefit from the project.

For the commercial/industrial/public benefit category, a different method was used. Because a census data category directly relating to commercial, industrial, or public structure changes within this levee system is not available, aerial imagery was utilized. Comparing imagery from 2005 and 2012, the area is very similar. However, after close examination of the imagery, a slight trend was observed. Based on the differences in the imagery, it is estimated that a 2.5 percent decrease in the commercial, industrial, and public inventory occurred from 2005 to 2012. This decrease will be applied as the commercial/industrial/public “inventory adjustment factor” to estimate the reduction of that benefit category. Of the value in the original analysis, the commercial, industrial, and public categories made up 60 percent of the total benefit.

Table 4. Structure Inventory Adjustment Factor

Category	Percent of Inventory Value	Inventory Change (2005 to 2012)	Total Change	Inventory Adjustment Factor
Residential	40%	-3.9%		
Commercial, Industrial, and Public	60%	-2.5%	-3.1%	0.9694

Applying the inventory adjustment factor to the original average annual benefit of \$3,822,600 (Oct 2005) reduces the benefit to \$3,705,600 (Oct 2005). Using Marshall and Swift to update the depreciated replacement values for a sample of the original structure inventory, a price level adjustment factor of 1.3671 was calculated. This factor was used to bring the inventory-adjusted average annual benefit of \$3,705,600 (Oct 2005) to the present value of \$5,066,100 (Oct 2012).

Table 5. Price Level Adjustment

Inventory Adjusted Original Benefit Oct 2005	Inflation Factor*	Current Benefit Oct 2012
\$ 3,705,600	1.3671	\$ 5,066,100

*Using Marshall and Swift on small sample a weighted Price Level Factor was created.

6.8 PROJECT COSTS

As shown in Table 6 below, the total economic cost of the project at current October 2012 price level is \$29,893,000, which includes \$25,672,000 for construction and \$4,221,000 for interest during construction (IDC) at the current 3.75% Federal Discount Rate (FDR).

Table 6. Yearly Cost Allocation (2012 PL, 3.75% FDR)

Periods	Fiscal Year	Cost Percent by Year	Actual & Scheduled Costs	IDC (Oct 2012)
7	2009	0.841%	\$216,000	\$63,000
6	2010	9.575%	\$2,458,000	\$608,000
5	2011	24.127%	\$6,194,000	\$1,252,000
4	2012	50.257%	\$12,902,000	\$2,047,000
3	2013	0.378%	\$97,000	\$11,000
2	2014	9.668%	\$2,482,000	\$190,000
1	2015	5.153%	\$1,323,000	\$50,000
Sum Total		100%	\$25,672,000	\$4,221,000
Remaining Cost (FY12-15)¹			\$4,873,000	\$405,000

¹Includes \$971,000 costs scheduled for FY12. The IDC for this amount in FY12 is estimated at \$165,000.

6.9 BENEFIT-COST RATIO

The authorized reconstruction project had a benefit-to-cost ratio of 3.13 at the October 2005 price level with a Federal Discount Rate of 5.125%. The current BCR is shown in Table 7.

Table 7. Benefit and Cost Ratio Calculations (3.75% FDR, 2012 PL)

Cost Estimate and Benefits	Original Estimate	Current Estimate
	Oct-05 5.125%	Oct-12 3.750%
Expected Annual Benefits	\$ 3,822,600	\$ 5,066,100 ¹
First Costs	\$ 16,740,200	\$ 25,672,000
IDC	\$ 2,420,600	\$ 405,000
AA Investment	\$ 1,071,000	\$ 1,162,400
OMRR&R	\$ 150,700	\$ 174,600
Total AA Costs	\$ 1,221,700	\$ 1,337,000
BCR	3.1	3.8
Expected Annual Net Benefits	\$ 2,600,900	\$ 3,729,100

¹The Price Level Adjustment Factor (Appendix A - Table 4) was used to bring the benefits to the Oct 2012 Price Level

6.10 REMAINING BENEFIT - REMAINING COST RATIO

The remaining benefit-remaining cost ratio of the project was calculated based on the latest Program Development Guidance for FY2012 (EC 11-2-199) as shown in Table 8.

Table 8. Remaining Benefits and Remaining Costs Calculations (3.75% FDR, 2012 PL)

RBRCR Calculation	Oct-12 @ 3.75%	Oct-12 @ 7%
Remaining Project Cost w/o IDC	\$ 4,873,000	\$ 4,873,000
Remaining IDC	\$ 405,000	\$ 777,000
Annualized Project Cost w/IDC	\$ 235,300	\$ 409,398
Annualized OMRR&R Cost	\$ 174,600	\$ 283,700
Total Annual Remaining Project Cost	\$ 409,900	\$ 693,098
Total Remaining Annual Benefit²	\$ 805,100 ¹	\$ 805,100 ¹
BCR Calculation	2.0	1.2
Remaining Average Annual Net Benefit	\$ 395,200	\$ 112,002

¹The Price Level Adjustment Factor (Appendix A - Table 4) was used to bring the benefits to the Oct 2012 Price Level
²Average Annual Remaining Benefits are from East Alton #1 (\$213,600 - Oct 2005) and Closure Structure work to be completed on Upper Wood River (\$375,300 - Oct 2005).

See *Appendix A – Economic Reevaluation* for additional economics computation details.

6.11 COST ALLOCATION

There have been no changes in cost allocation since project authorization. The current project purpose is still flood risk management.

6.12 COST APPORTIONMENT

A comparison of the apportionment of costs between Federal and non-Federal interests for the authorized project and the recommended project, both at current price levels, is given in Table 9.

Table 9. Apportionment of Costs for the Authorized and the Recommended Project (October 2012 price level)

	Federal	Non-Federal	Total
Authorized Project	65%	35%	
Flood Control	\$12,915,500	\$6,954,500	\$19,870,000
Total Authorized Project	\$12,915,500	\$6,954,500	\$19,870,000
Recommended Project	65%	35%	
Flood Control	\$16,686,800	\$8,985,200	\$25,672,000
Structural			
5% Cash		\$(1,283,600)	
Additional Cash Requirement		\$(7,701,600)	
LERRD's		\$0	
Total Recommended Project	\$16,686,800	\$8,985,200	\$25,672,000

7.0 ENVIRONMENTAL CONSIDERATIONS

There have been no significant changes in environmental considerations for the project. An Environmental Assessment (EA) was completed as part of the 2006 GRR and the FONSI was signed on 23 March 2006. There have been no changes to the project since the 2006 EA that would necessitate further environmental compliance actions.

8.0 PUBLIC INVOLVEMENT

The project changes that have caused the increased project costs have been coordinated and discussed with the Wood River Drainage and Levee District through correspondence, telephone conversations, meetings, and field visits. Local interests have sufficient local funding to complete the project based on the current cost estimate and schedule.

9.0 HISTORY

A brief history of the Wood River Reconstruction project, subsequent to authorization, is given in Table 10 below.

Table 10. Brief Project History Since Authorization

Item/Event	Date
Project Authorization (WRDA)	2007
PCA Executed	Jun 2008
Construction Funding Received	2009

10.0 RECOMMENDATION

I recommend that this Limited Reevaluation Report be approved and the authorized project cost estimate be modified from \$17,220,000 at October 2006 price levels to \$25,672,000 at October 2012 price levels. U.S. Army Corps of Engineers cost sharing policy for flood risk reduction projects requires cash contributions consistent with the Water Resources Development Act of 1986, as amended; therefore, the Federal share is 65% (\$16.7 Million) and the sponsor share is 35% (\$8.9 Million). Average annual economic benefits for this project are \$5,066,100, and average annual costs are \$1,337,000, resulting in a benefit to cost ratio of 3.8. The project is justified economically and for safety reasons.

The recommendations contained herein reflect the information available at this time and current Departmental policies governing formulation of individual projects. They do not reflect program and budgeting priorities inherent in the formulation of a national Civil Works construction program nor the perspective of higher review levels within the Executive Branch. Final approval will be obtained from the Assistant Secretary of the Army (Civil Works).

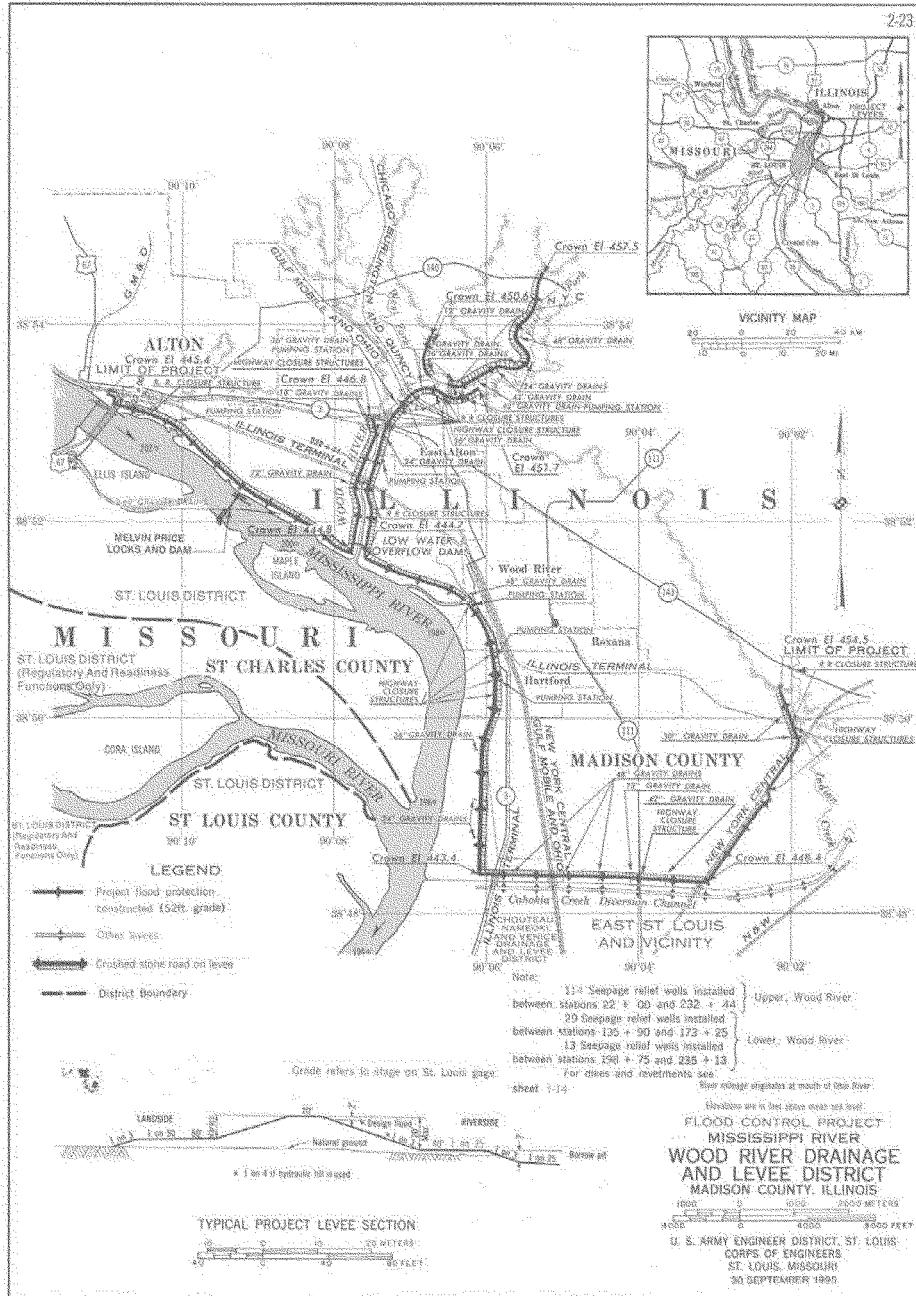
CHH:100 1-28-13
Christopher Hall Date
Colonel, U.S. Army
District Engineer

Plate 1 - Overall Project Map

CORPS OF ENGINEERS

U. S. ARMY

2-23



Appendix A

Economic Evaluation

Benefit Information

Since there was no change in project features or scope, the general nature of the benefits remain unchanged from the Wood River Levee System General Reevaluation Report (2006). All benefit information in this appendix and the main report is presented at October 2012 price levels. The total project benefits in the approved report come from a Design Deficiency component and a Reconstruction component. The Design Deficiency component consisted of relief wells while the Reconstruction component consisted of gravity drain, pump station, and closure structure repairs. This Post Authorization Change (PAC) Report is only concerned with the benefits from the Reconstruction component. The economic benefit information in this report comes directly from the Economic Appendix (B) of the approved report and was adjusted using current census and GIS data.

The Wood River Levee system is divided into three reaches, Upper Wood River, Lower Wood River, and the East – West Fork. The structure inventory is presented in Table 1.

Table 1. Structure Inventory by Study Area Reach (Oct 2005)

Reach	Building Category	Number of Buildings	Average Value of Buildings
Lower Wood River (River Mile 197.0)	Residential	8,640	\$ 68,244
	Commercial	960	\$ 216,829
	Industrial	50	\$ 3,642,743
	Total	9,650	\$ 101,546
East - West Fork (River Mile 199.4)	Residential	-	\$ -
	Commercial	1	\$ 69,873
	Industrial	463	\$ 552,228
	Total	464	\$ 551,188
Upper Wood River (River Mile 201.0)	Residential	-	\$ -
	Commercial	59	\$ 1,675,980
	Industrial	29	\$ 7,631,884
	Total	88	\$ 3,638,721
Total	Residential	8,640	\$ 68,244
	Commercial	1,020	\$ 1,962,682
	Industrial	542	\$ 11,826,855
	Total	10,202	\$ 882,348

*Total structure value of residential, commercial, and industrial buildings inventoried in the study area is slightly over \$1.5 billion.

Benefit Confirmation. Using an Economic Update Methodology, slightly above a Level 1, to confirm the benefits calculated for the original report have not significantly changed was deemed appropriate for this report as two LRRs have recently been completed on this same project area (2011 and 2012). Since the benefits were based on the inundation of the structures and population as of the year 2005, GIS software and Census data were used to support the economic data collected at the time of the approved GRR.

Table 2. Census Data 2000 and 2010

Census Data by Year				
Municipality	Data Type	2000	2010	% Change
Alton	Population	30,496	27,865	-8.6%
	Occupied Housing	12,518	11,734	-6.3%
East Alton	Population	6,830	6,301	-7.7%
	Occupied Housing	2,965	2,762	-6.8%
Hartford	Population	1,545	1,429	-7.5%
	Occupied Housing	650	613	-5.7%
Roxana	Population	1,547	1,542	-0.3%
	Occupied Housing	655	630	-3.8%
South Roxana	Population	1,888	2,053	8.7%
	Occupied Housing	707	791	11.9%
Wood River	Population	11,296	10,657	-5.7%
	Occupied Housing	4,725	4,445	-5.9%
Total	Total Population	53,602	49,847	-7.0%
	Total Occupied Housing	22,220	20,975	-5.6%

Source: U.S. Census Bureau - American Fact Finder

Census data were used as the first tool for quantifying any possible changes within the levee area over time. A query on American Fact Finder was done to document the population change of the six municipalities located within the levee system. The Alton, East Alton, Hartford, Roxana, South Roxana, and Wood River municipalities have seen a combined reduction in population of 7.0% from 2000 to 2010. The occupied housing data for the same municipalities shows a reduction of 5.6% over the same time period. While this data alone suggests the possibility of a slightly lower benefits base within the system, land use data indicates urban development, rather than decline.

Land use data and aerial imagery were used as additional tools for quantifying any possible changes within the levee area over time. The substantial and continued increase in the urban land usage supported what is being seen in the field. GIS data from ESRI showed a 10% increase in urban land use from 2000 to 2006. Since data is not yet available for 2010, aerial imagery (GoogleEarth) was used for further investigation and even more urban and commercial/industrial growth was observed from 2006 to 2012. The State of Illinois, through

IDOT continues to invest in the area through the expansion of I-255, which now passes through the levee system.

The inventory has been largely unaffected by flood events since the approval of the GRR. Even during the flood of 2008, flood fighting helped to prevent any breach and most of the interior flooding occurred in designated ponding areas or in fields.

Quantifying the Change in Inventory. For the residential benefit category, there are six municipalities within the Wood River Levee System (Alton, East Alton, Hartford, Roxana, South Roxana, and Wood River). Census data shows there has been a 5.6 percent decrease in total occupied housing within these municipalities from 2000 to 2010 (a 0.56 percent annual decrease). For this analysis, the population decrease is assumed to have occurred at a steady rate. Because the fieldwork for the original economic analysis for the GRR took place in 2005, applying the annual decrease in occupied housing from 2005 to 2012 results in a total decrease of 3.9 percent. This total decrease will be applied as the residential “inventory adjustment factor” to estimate the reduction of the residential benefit. Of the value in the original analysis, the residential category made up 40 percent of the total benefit from the project (\$1.23B residential of \$3.08B for total inventory - 2005 total structure and content value).

For the commercial/industrial/public benefit category, a different method was used. Because a census data category directly relating to commercial, industrial, or public structure changes within this levee system is not available, aerial imagery was utilized. Comparing imagery from 2005 and 2012, the area is very similar. Taken at face value, the land use data seems to indicate an increase in urban development, however, after close examination of the areal imagery, a slight trend was observed. Based on the differences in the imagery, it is estimated that a 2.5 percent decrease in the commercial, industrial, and public inventory occurred from 2005 to 2012. This decrease will be applied as the commercial/industrial/public “inventory adjustment factor” to estimate the reduction of that benefit category. Of the value in the original analysis, the commercial, industrial, and public categories made up 60 percent of the total benefit (\$1.85B commercial, industrial, and public of \$3.08B for total inventory - 2005 total structure and content value).

Table 3. Inventory Adjustment Factor

Category	Percent of Inventory Value	Inventory Change (2005 to 2012)	Total Change	Inventory Adjustment Factor
Residential	40%	-3.9%		
Commercial, Industrial, and Public	60%	-2.5%	-3.1%	0.9694

Benefit and Cost Analysis

Benefits. The Reconstruction component of the project included repairs or replacement of closures structures, gravity drains, and pump stations. The benefits were calculated using

HEC-FDA and are displayed at in Table 5 October 2005 price levels. Applying the inventory adjustment factor to the original average annual benefit of \$3,822,600 (Oct 2005) reduces the benefit to \$3,705,600 (Oct 2005). Using Marshall and Swift to update the depreciated replacement values for a sample of the original structure inventory, a price level adjustment factor of 1.3671 was calculated. This factor was used to bring the inventory-adjusted average annual benefit of \$3,705,600 (Oct 2005) to the present value of \$5,066,100 (Oct 2012).

Table 4. Price Level Adjustment

Inventory Adjusted Original Benefit Oct 2005	Inflation Factor*	Current Benefit Oct 2012
\$ 3,705,600	1.3671	\$ 5,066,100

*Using Marshall and Swift on small sample a weighted Price Level Factor was created.

Table 5. Wood River Levee Reconstruction Benefits (Oct 2005)

Reconstruction Component Expected Annual Inundation Damage Reduced and Distributed Wood River Levee System ¹							
Levee Reach	Feature	Expected Annual Damage			Probability Net Benefit Exceeds Indicated Amount		
		Total W/O Project	Total With Project	Net Benefits	0.75	0.50	0.25
Lower Wood River	Closure Structures	\$ 1,495,220	\$ 847,840	\$ 647,380	\$ 446,644	\$ 638,652	\$ 879,941
	Gravity Drains	\$ 1,544,320	\$ 847,840	\$ 696,480	\$ 480,520	\$ 687,090	\$ 926,432
	Pump Stations	\$ 946,260	\$ -	\$ 946,260	\$ 652,849	\$ 933,503	\$ 1,264,693
East-West Fork	Closure Structures	\$ 405,000	\$ 124,770	\$ 280,230	\$ 193,338	\$ 276,452	\$ 360,758
	Gravity Drains	\$ 362,040	\$ 124,770	\$ 237,270	\$ 163,699	\$ 234,071	\$ 302,458
	Pump Stations	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Upper Wood River	Closure Structures	\$ 602,390	\$ 227,050	\$ 375,340	\$ 258,957	\$ 370,280	\$ 484,110
	Gravity Drains	\$ 570,680	\$ 227,050	\$ 343,630	\$ 237,079	\$ 338,997	\$ 446,314
	Pump Stations	\$ 270,560	\$ -	\$ 270,560	\$ 186,666	\$ 266,912	\$ 393,134
Levee System	Total ²	\$6,221,920	\$2,399,320	\$3,822,600	\$2,645,202	\$3,771,407	\$5,083,290

¹Oct 2005 PL

²Average Annual Benefits Reported in GRR are \$25,450 higher than what was accounted for in HEC-FDA individual component tables, but were captured in the total project HEC-FDA table. These benefits were added on to the Levee System Total in this table.

Costs. The current cost estimate at October 2012 price levels is \$25,672,000 (Table 2). This is compared to the original cost estimate below.

Table 6. Cost Estimate at October 2012 Price Levels

Cost Estimate and Benefits	Original Estimate	Current Estimate
	Oct-05	Oct-12
	5.125%	3.750%
Expected Annual Benefits	\$ 3,822,600	\$ 5,066,100 ¹
First Costs	\$ 16,740,200	\$ 25,672,000
IDC	\$ 2,420,600	\$ 405,000
AA Investment	\$ 1,071,000	\$ 1,162,400
OMRR&R	\$ 150,700	\$ 174,600
Total AA Costs	\$ 1,221,700	\$ 1,337,000
BCR	3.1	3.8
Expected Annual Net Benefits	\$ 2,600,900	\$ 3,729,100

¹The Price Level Adjustment Factor (Table 4) was used to bring the benefits to the Oct 2012 Price Level

Interest During Construction. The Interest During Construction (IDC) is calculated in the table below. The IDC is presented in October 2012 price levels at a 3.75% discount rate.

Table 7. Construction Schedule and Interest During Construction

Periods	Fiscal Year	Cost Percent by Year	Actual & Scheduled Costs	IDC (Oct 2012)
7	2009	0.841%	\$216,000	\$63,000
6	2010	9.575%	\$2,458,000	\$608,000
5	2011	24.127%	\$6,194,000	\$1,252,000
4	2012	50.257%	\$12,902,000	\$2,047,000
3	2013	0.378%	\$97,000	\$11,000
2	2014	9.668%	\$2,482,000	\$190,000
1	2015	5.153%	\$1,323,000	\$50,000
Sum Total		100%	\$25,672,000	\$4,221,000
Remaining Cost (FY12-15)¹			\$4,873,000	\$405,000

¹Includes \$971,000 costs scheduled for FY12. The IDC for this amount in FY12 is estimated at \$165,000.

Benefit - Cost Ratio. The total project cost is \$25,672,000 (Oct 2012). The average annual benefits from this project are \$5,066,100 (Oct 2012), with an average annual net benefit of \$3,729,100 (Oct 2012). The BCR for the project at a 3.75% federal discount rate is 3.8.

Table 8. Benefit and Cost Ratio Calculations (3.75% & 7% FDR, 2012 PL)

BCR Calculation	Oct-12 @ 3.75%	Oct-12 @ 7%
Project Cost w/o IDC	\$ 25,672,000	\$ 25,672,000
IDC	\$ 405,000	\$ 777,000
Annualized Project Cost w/IDC	\$ 1,162,400	\$ 1,916,500
Annualized OMRR&R Cost	\$ 174,600	\$ 283,700
Total Annual Project Cost	\$ 1,337,000	\$ 2,200,200
Total Annual Benefit¹	\$ 5,066,100	\$ 5,066,100
BCR Calculation	3.8	2.3
Average Annual Net Benefit	\$ 3,729,100	\$ 2,865,900

¹The Price Level Adjustment Factor (Table 4) was used to bring the benefits to the Oct 2012 Price Level

Remaining Benefits and Remaining Costs. The remaining benefits come from an unfinished pump station (East Alton #1) and a closure structure for Upper Wood River that does not currently have gates attached. The remaining cost is \$4,873,000 (Oct 2012). The remaining average annual cost is \$409,900 (Oct 2012) and the remaining average annual benefit is \$805,100 (Oct 2012).

Table 9. Remaining Benefits and Remaining Costs Calculations (3.75% & 7% FDR, 2012 PL)

RBRCR Calculation	Oct-12 @ 3.75%	Oct-12 @ 7%
Remaining Project Cost w/o IDC	\$ 4,873,000	\$ 4,873,000
Remaining IDC	\$ 405,000	\$ 777,000
Annualized Project Cost w/IDC	\$ 235,300	\$ 409,398
Annualized OMRR&R Cost	\$ 174,600	\$ 283,700
Total Annual Remaining Project Cost	\$ 409,900	\$ 693,098
Total Remaining Annual Benefit²	\$ 805,100 ¹	\$ 805,100 ¹
BCR Calculation	1.9	1.2
Remaining Average Annual Net Benefit	\$ 395,200	\$ 112,002

¹The Price Level Adjustment Factor (Table 4) was used to bring the benefits to the Oct 2012 Price Level

²Average Annual Remaining Benefits are from East Alton #1 (\$213,600 - Oct 2005) and Closure Structure work to be completed on Upper Wood River (\$375,300 - Oct 2005).

**Appendix B
Cost Estimating**

COST ESTIMATE SUMMARY

GENERAL

The project is currently in the construction phase. Approximately 95 percent of the total project is physically complete at this time. Expended costs to date are shown in the TPCS and have been verified using RMS data. Remaining work includes minor repairs (hand rails, grating, ladders, etc.) at 22 gravity drainage structures, gate installation and partial replacement of the monolith at one closure structure, rehabilitation of two pumps at East Alton #1 pump station, and roofing, tuck pointing, fencing on six pump stations and the completion of the electrical work at one pump station. Additionally, although not explicitly identified in the GRR, several of the pump station doors are deteriorated and in need of replacement. This additional work is included in the total project cost estimate and is shown on page 2 of the TPCS for remaining work under the 11 and 13 WBS accounts.

CONTINGENCIES

Risk analyses processes indicate an approximate 17% contingency or \$150K on the remaining work. Recognizing our remaining concerns related to contract award values of outstanding contracts and potential modification growth as compared to historical growth, the District is compelled to request a 25% contingency value of \$215K for the PACR, a value supported by the Cost MCX.

PLANNING, ENGINEERING AND DESIGN (PED)

Costs for PED consider funds expended to date as well as future anticipated Engineering and Project Management costs for remaining construction items. Additional funding has also been considered for work currently under contract as well as anticipated contract closeout costs.

CONSTRUCTION MANAGEMENT

Costs for Construction Management consider funds expended to date as well as future anticipated costs for remaining construction items. Additional funding has also been considered for work currently under contract.

**WALLA WALLA COST ENGINEERING
MANDATORY CENTER OF EXPERTISE**

COST AGENCY TECHNICAL REVIEW

CERTIFICATION STATEMENT

For

MVS – Wood River Reconstruction LRR – 902

The Wood River Reconstruction – LRR 902 report, as presented by St Louis District, has undergone a successful Cost Agency Technical Review (Cost ATR), performed by the Walla Walla District Cost Engineering Mandatory Center of Expertise (Cost MCX) team. The Cost ATR included study of the project scope, report, cost estimates, schedules, escalation, and risk-based contingencies. This certification signifies the products meet the quality standards as prescribed in ER 1110-2-1150 Engineering and Design for Civil Works Projects and ER 1110-2-1302 Civil Works Cost Engineering.

As of August 22, 2012, the Cost MCX certifies the estimated total project cost of:

Remaining Costs	FY 2014	\$ 4,982,000
Completed Costs	FY 2012	\$20,799,000
Fully Funded Amount:		\$25,802,000 including Spent costs

It remains the responsibility of the District to correctly reflect these cost values within the Final Report and to implement effective project management controls and implementation procedures including risk management throughout the life of the project.



**US Army Corps
of Engineers®**

MP/Matlock
Glenn R. Matlock, PE, CCE
Chief, Cost Engineering
Walla Walla District

Date 22 Aug 2012

PROJECT: Wood River LRR
 LOCATION: Madison County, IL

This Estimate reflects the scope and schedule in report;

Limited Reevaluation Report Reconstruction

***** TOTAL PROJECT COST SUMMARY *****

Printed 8/22/2012

Page 1 of 3

PREPARED: 8/22/2012

POC:

CHIEF, COST ENGINEERING

DISTRICT: MWS - St. Louis

Spent Thru:

16-Aug-12

\$0.

FULL

\$0.

O

WBS Structure		Estimated Cost		Project First Cost Boiler Basis		(Constant)		Total Project Cost (Fully Funded)	
WBS Number	Feature & Sub-Feature Description	COST (\$K)	CNTG (% \$K)	COST (\$K)	CNTG (% \$K)	TOTAL (\$K)	CNTG (% \$K)	COST (\$K)	CNTG (% \$K)
11	LEVEES & FLOODWALLS	\$2,209	25%	\$2,761	2.0%	\$2,253	56%	\$2,817	12.302
13	PUMPING PLANT	\$1,002	25%	\$1,253	2.0%	\$1,022	236	\$1,278	3,395
CONSTRUCTION ESTIMATE TOTALS:		\$3,211	\$603	\$4,014	2.0%	\$3,275	\$819	\$4,084	\$17,697
01	LANDS AND DAMAGES	-	-	-	-	-	-	-	\$3,282
30	PLANNING, ENGINEERING & DESIGN	\$573	\$143	25%	\$716	3.3%	\$502	\$148	\$740
31	CONSTRUCTION MANAGEMENT	\$114	\$29	25%	\$143	3.3%	\$118	\$29	\$147
PROJECT COST TOTALS:		\$3,869	\$975	25%	\$4,073	\$3,065	\$996	\$4,982	\$20,759
<u>Gary J. Lee, P.E.</u>		CHIEF, COST ENGINEERING		PROJECT MANAGER		ESTIMATED FEDERAL COST:		65% \$16,771	
<u>Timothy J. Kerr</u>		CHIEF, REAL ESTATE, xxx		ESTIMATED NON-FEDERAL COST:		35% \$9,031			
<u>Jay T. Fowler, P.E.</u>		CHIEF, PLANNING,xxx		ESTIMATED TOTAL PROJECT COST:		\$25,802			
ORIGIN OUTSIDE OF TOTAL PROJECT COST:									

PROJECT: Wood River LRR
LOCATION: Madison County, IL
The estimate reflects the scope and schedule in report.

*** TOTAL PROJECT COST SUMMARY ***

*** CONTRACT COST SUMMARY ***

Limited Reevaluation Report Reconstruction

Printed:02/20/2012

Page 2 of 3

PREPARED: 8/2/2012

DISTRICT: MWS - St. Louis, CHIEF, COST, ENGINEERING

POC:

WBS Structure		ESTIMATED COST		PROJECT FIRST COST (Dollar Basis)		(Constant)		TOTAL PROJECT COST (FULLY FUNDED)			
		Estimate Prepared: Effective Price Level: 16-Aug-12				Program Year (Budget/EC): Effective Price Level Date: 1 OCT 13					
WBS NUMBER	Feature & Sub-Feature Description	COST -\$SO	RISK BASED CANTG -\$SO	COST -\$SO	CANTG -\$SO	TOTAL F	ESC -\$SO	CANTG -\$SO	TOTAL J	Mid-Point Date P	INFLATED L
A	Remaining Work	C	E	G	H	I	J	K	M	N	O
11	LEVEES & ELCOWALLS	\$405	\$114	25%	\$660	2.0%	\$464	\$116	\$980	2014Q3	0.9%
1.3	PUMPING PLANT	\$405	\$101	25%	\$506	2.0%	\$413	\$103	\$516	2014Q3	0.8%
		\$880				\$1,075					
		\$877				\$246					
		\$1,097				\$884					
		\$1,095				\$221					
CONSTRUCTION ESTIMATE TOTALS:											
01	LANDS AND DAMAGES										
30	PLANNING, ENGINEERING & DESIGN	\$17	\$4	25%	\$21	3.3%	\$48	\$4	\$22	2014Q1	\$18
2.0%	Project Management	\$9	\$2	25%	\$11	3.3%	\$9	\$2	\$12	2014Q1	\$2
1.0%	Planning & Environmental Compliance	\$43	\$11	25%	\$54	3.3%	\$44	\$11	\$44	2014Q1	\$11
5.0%	Engineering & Design	\$13	\$3	25%	\$16	3.3%	\$13	\$3	\$17	2014Q1	\$3
1.5%	Engineering Tech Review /R & E	\$2	\$2	25%	\$11	3.3%	\$9	\$2	\$9	2014Q1	\$2
1.0%	Contracting & Recongraphes	\$17	\$4	25%	\$21	3.3%	\$16	\$4	\$22	2014Q3	\$16
2.0%	Engineering During Construction	\$215	\$79	25%	\$394	3.3%	\$235	\$41	\$407	2014Q1	\$31
	OBM Manuals And As-Builts	\$100	\$25	25%	\$125	3.3%	\$103	\$26	\$129	2014Q3	\$105
	Contract Closeout										
31	CONSTRUCTION MANAGEMENT	\$68	\$17	25%	\$86	3.3%	\$70	\$18	\$88	2014Q3	1.8%
8.0%	Construction Management	\$17	\$4	25%	\$21	3.3%	\$18	\$4	\$22	2014Q3	\$18
2.0%	Project Operation										
CONTRACT COST TOTALS:		\$1,468	\$367	\$1,336	\$1,505	\$376	\$1,882	\$1,622	\$381	\$4,903	

COST ESTIMATE
FOR
LIMITED REVALUATION REPORT
WOOD RIVER LEVEE SYSTEM
RECONSTRUCTION

WOOD RIVER LEVEE SYSTEM
MADISON COUNTY, ILLINOIS

Estimated by St. Louis District
Designed by Gregory Dyn
Prepared by
Preparation Date 8/22/2012
Effective Date of Pricing 8/22/2012
Estimated Construction Time Days

Labor ID: Madison
EQ ID: EP11R05

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TRACES MII Version 4.0
Currency in US dollars

Description	Page
Owner Cost Level 1	1
11 Levees and Floodwalls	1
13 Pumping Plant	1
30 Planning, Engineering and Design	1
31 Construction Management	1
Owner Cost Level 2	2
11 Levees and Floodwalls	2
11 02 Gravity Drainage Structures	2
11 03 Closure Structures	2
13 Pumping Plant	2
Expenditures to Date (15 Aug 2012)	2
Current Contract Obligations not Expended	2
Remaining Work to Be Completed	2
30 Planning, Engineering and Design	2
PED Expenditures to Date (15 Aug 2012)	2
PED Additional for Current Contract Obligations	2
PED Through Completion of Project	2
O&M Manuals and As Built Drawings	2
Contract Closeout	2
31 Construction Management	2
CM Expenditures to Date (15 Aug 2012)	2
CM Additional for Current Contract Obligations	2
CM Through Completion of Project	2
Owner Cost Level 3	3
11 Levees and Floodwalls	3
11 02 Gravity Drainage Structures	3
Expenditures to Date (15 Aug 2012)	3
Current Contract Obligations not Expended	3
Remaining Work to Be Completed	3
11 03 Closure Structures	3
Expenditures to Date (15 Aug 2012)	3
Current Contract Obligations not Expended	3
Remaining Work to Be Completed	3
13 Pumping Plant	3
Expenditures to Date (15 Aug 2012)	3
Current Contract Obligations not Expended	3
Remaining Work to Be Completed	3
East Alton No. 1 PS - Pump #1 Rehab	3
Rand Ave PS Sluice Gate Installation	3
Pump Station Building Repairs	3
30 Planning, Engineering and Design	3
PED Expenditures to Date (15 Aug 2012)	3
PED Additional for Current Contract Obligations	3
PED Through Completion of Project	3
Labor ID: Madison	Currency in US dollars
EQ ID: EP11R05	TRACES MII Version 4.0

Description	Page
O&M Manuals and As Built Drawings	3
Contract Closeout	3
31 Construction Management	3
CM Expenditures to Date (15 Aug 2012)	3
CM Additional for Current Contract Obligations	3
CM Through Completion of Project	3

Print Date Wed 22 August 2012
Eff. Date 8/22/2012

U.S. Army Corps of Engineers, St Louis District
Project Wood River, Wood River PACR

Time 10:38:08
Owner Cost Level 1 Page 1

Description	UOM	Quantity	DirectCost	CostToPrime	ContractCost	Contingency	ProjectedCost
Owner Cost Level 1							
11 Levees and Floodwalls	LS	1.0000	24,454,936.07	683,096.50	24,996,826.22	974,529.74	25,671,355.96
13 Pumping Plant	LS	1.0000	14,405,518.20	349,746.42	14,511,241.51	552,261.76	15,063,893.27
30 Planning, Engineering and Design	LS	1.0000	6,260,816.87	333,350.08	6,396,982.71	250,517.98	6,647,900.70
31 Construction Management	LS	1.0000	3,087,624.00	0.00	3,087,624.00	143,250.00	3,230,874.00
	LS	1.0000	700,978.00	0.00	700,978.00	28,500.00	729,478.00

Labor ID: Madison EQ ID: EP11R05

Currency in US dollars

TRACES MII Version 4.0

Description	UoM	Quantity	DirectCost	CostToPrime	ContractCost	Contingency	ProjectCost
Owner Cost Level 2							
11 Levees and Floodwalls	LS	1.0000	24,454,936.07	683,096.50	24,696,826.22	974,529.74	25,677,356.86
11 02 Gravity Drainage Structures	LS	1.0000	14,405,518.20	349,746.42	14,511,241.51	552,261.76	15,063,803.27
11 03 Closure Structures	LS	1.0000	7,814,003.75	191,1453.55	7,871,738.73	219,867.61	8,091,454.34
13 Pumping Plant	LS	1.0000	6,551,514.45	168,592.84	6,635,454.78	322,594.15	6,972,048.93
Expenditures to Date (15 Aug 2012)	LS	1.0000	6,260,815.87	333,350.08	6,395,982.71	250,517.38	6,641,500.70
Current Contract Obligations not Expended	LS	1.0000	5,394,910.78	0.00	5,394,910.78	0.00	5,394,910.78
Remaining Work to Be Completed	LS	1.0000	556,944.92	0.00	596,944.92	149,236.23	746,181.15
30 Planning, Engineering and Design	LS	1.0000	268,960.17	333,350.08	405,127.01	101,281.75	506,408.77
PED Expenditures to Date (15 Aug 2012)	LS	1.0000	3,087,624.00	0.00	3,087,624.00	143,260.00	3,230,874.00
PED Additional for Current Contract Obligations	LS	1.0000	2,514,624.00	0.00	2,514,624.00	0.00	2,514,624.00
PED Through Completion of Project	LS	1.0000	50,000.00	0.00	50,000.00	12,500.00	62,500.00
O&M Manuals and As Built Drawings	LS	1.0000	108,000.00	0.00	108,000.00	27,000.00	135,000.00
Contract Closeout	LS	1.0000	315,000.00	0.00	315,000.00	78,750.00	393,750.00
31 Construction Management	LS	1.0000	100,000.00	0.00	100,000.00	25,000.00	125,000.00
CM Expenditures to Date (15 Aug 2012)	LS	1.0000	700,978.00	0.00	700,978.00	28,500.00	729,478.00
CM Additional for Current Contract Obligations	LS	1.0000	586,978.00	0.00	586,978.00	0.00	586,978.00
CM Through Completion of Project	LS	1.0000	29,000.00	0.00	29,000.00	7,250.00	36,250.00

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Eff. Date 8/22/2012

U.S. Army Corps of Engineers, St Louis District
Project Wood River, Wood River PACR

Time 10:38:08

Owner Cost Level 3 Page 3

Description	UOM	Quantity	DirectCost	CostToPrime	ContractCost	Contingency	ProjectCost
Owner Cost Level 3			24,454,936.07	683,096.50	24,696,926.22	974,629.74	25,671,355.96
11 Levees and Floodwalls	LS	1,0000	14,405,518.20	349,746.42	14,511,241.51	552,261.76	15,063,893.27
11 02 Gravity Drainage Structures	LS	1,0000	7,814,003.75	191,163.58	7,871,786.73	219,867.61	8,091,454.34
Expenditures to Date (15 Aug 2012)	LS	1,0000	6,933,116.28	0.00	6,993,116.28	0.00	6,993,116.28
Current Contract Obligations not Expended	LS	1,0000	629,733.89	0.00	629,735.89	157,433.47	781,167.36
Remaining Work to Be Completed	LS	1,0000	191,163.58	191,163.58	248,936.56	62,234.14	311,170.70
11 03 Closure Structures	LS	1,0000	6,591,514.45	158,692.84	6,635,454.78	332,594.16	6,972,048.33
Expenditures to Date (15 Aug 2012)	LS	1,0000	5,309,078.20	0.00	5,309,078.20	0.00	5,309,078.20
Current Contract Obligations not Expended	LS	1,0000	1,123,843.41	0.00	1,123,843.41	280,960.85	1,404,804.26
Remaining Work to Be Completed	LS	1,0000	168,592.84	158,592.84	206,533.17	51,633.29	253,166.47
13 Pumping Plant	LS	1,0000	6,280,815.87	333,350.08	6,395,982.71	250,517.98	6,647,500.70
Expenditures to Date (15 Aug 2012)	LS	1,0000	5,394,910.78	0.00	5,394,910.78	0.00	5,394,910.78
Current Contract Obligations not Expended	LS	1,0000	696,944.92	0.00	596,944.92	149,236.23	746,181.16
Remaining Work to Be Completed	LS	1,0000	268,960.17	333,350.08	405,127.01	101,221.75	506,408.77
East Alton No. 1 PS - Pump #1 Rehab	LS	1,0000	62,000.00	79,548.48	95,994.06	23,293.52	119,117.58
Rand Ave PS Sluice Gate Installation	LS	1,0000	3,104.86	3,104.86	4,043.42	1,010.85	5,054.27
Pump Station Building Repairs	LS	1,0000	203,855.31	250,696.74	305,389.53	76,347.38	381,736.82
30 Planning, Engineering and Design	LS	1,0000	3,037,624.00	0.00	3,087,624.00	143,250.00	3,230,874.00
PED Expenditures to Date (15 Aug 2012)	LS	1,0000	2,514,624.00	0.00	2,514,624.00	0.00	2,514,624.00
PED Additional for Current Contract Obligations	LS	1,0000	50,000.00	0.00	50,000.00	12,500.00	62,500.00
PED Through Completion of Project	LS	1,0000	108,000.00	0.00	108,000.00	27,000.00	135,000.00
O&M Manuals and As Built Drawings	LS	1,0000	315,000.00	0.00	315,000.00	78,750.00	393,750.00
Contract Closeout	LS	1,0000	100,000.00	0.00	100,000.00	25,000.00	125,000.00
31 Construction Management	LS	1,0000	700,978.00	0.00	700,978.00	28,500.00	729,478.00
CM Expenditures to Date (15 Aug 2012)	LS	1,0000	586,978.00	0.00	586,978.00	0.00	586,978.00
CM Additional for Current Contract Obligations	LS	1,0000	29,000.00	0.00	29,000.00	7,250.00	36,250.00
CM Through Completion of Project	LS	1,0000	85,000.00	0.00	85,000.00	21,250.00	106,250.00

Abbreviated Risk Analysis

Project (less than \$40M): Wood River Reconstruction 902 PACR

Project Development Stage: Construction Period

Risk Category: Low Risk: Simple Project-No Life Safety

Total Construction Contract Cost = **\$ 860,000**

CWWS

Feature of Work	Contract Cost	% Contingency	\$ Contingency	Total
		25.00%	\$ -	\$ -

01 LANDS AND DAMAGES	Real Estate	\$ -	25.00%	\$ -	\$ -
1 11 LEVEES AND FLOODWALLS	Gravity Drain Repair Work	\$ 249,000	11.34%	\$ 28,239	\$ 277,239.21
2 11 LEVEES AND FLOODWALLS	Closure Structure Repair Work	\$ 206,000	25.40%	\$ 52,331	\$ 258,330.53
3 13 PUMPING PLANT	Mechanical Repair Work	\$ 100,000	18.43%	\$ 18,426	\$ 118,425.68
4 13 PUMPING PLANT	Building Repair Work	\$ 305,000	16.39%	\$ 49,983	\$ 354,983.33
5			0.00%	\$ -	\$ -
6			0.00%	\$ -	\$ -
7			0.00%	\$ -	\$ -
8			0.00%	\$ -	\$ -
9			0.00%	\$ -	\$ -
10			0.00%	\$ -	\$ -
11			0.00%	\$ -	\$ -
12	Remaining Construction Items	\$ -	0.0%	0.00%	\$ -
13 30 PLANNING, ENGINEERING, AND DESIGN	Planning, Engineering, & Design	\$ 623,000	200%	\$ 10,460	\$ 533,460.00
14 31 CONSTRUCTION MANAGEMENT	Construction Management	\$ 86,000	200%	\$ 17,000	\$ 86,700.00
Totals	Real Estate	\$ 860,000	0.00%	\$ 148,979	\$ 1,008,979
	Total Construction Estimate	\$ 523,000	17.32%	\$ 10,460	\$ 533,460
	Total Planning, Engineering & Design	\$ 85,000	200%	\$ 17,000	\$ 86,700
	Total Construction Management	\$ 1,468,000		\$ 161,139	\$ 1,629,139

Wood River Reconstruction 902 PACR
 Construction Period
 Abbreviated Risk Analysis

		Potential Risk Areas									
		Typical Risk Elements									
		Construction Elements									
Project Scope Growth	-	3	1	1	-	-	-	-	-	-	-
Acquisition Strategy	2	2	1	2	-	-	-	-	-	-	-
Construction Elements	1	2	-	2	-	-	-	-	-	-	-
Quantities for Current Scope	-	-	-	1	-	-	-	-	-	-	-
Specialty Fabrication or Equipment	-	1	3	-	-	-	-	-	-	-	-
Cost Estimate Assumptions	1	1	1	2	-	-	-	-	-	-	-
External Project Risks	1	2	-	-	-	-	-	-	-	-	-
Gravity Drain Repair Work	Work	Closure Structure Repair Work	Mechanical Repair Work	Building Repair Work	Remaining Construction Work	Engineering, Design	Management, Planning	Construction, Management	Design	Engineering, Planning	Management

Wood River Reconstruction R95 P4CR

Contractor's Project Plan
Attachment 10 - Risk Analysis

Meeting Date: 16-Aug-12

Risk ID	Risk Owner	Risk Description	Project Scope Growth		Risk Description & Identification		Risk Level
			Impact	Severity	Impact	Severity	
Risk Register							
P-R-1	Crating Team/Eagle Woods	+Refrigeration sufficient to support design issues?	Current refrigeration units will suffice without issues. However, if new units are required, there will be significant delays.	Medium	The project is dependent on existing refrigeration units and all potential consequences will have to be evaluated.	Medium	Emergency
P-R-2	Closure Structure Repair Team	+Project may require added labour and supplies?	Current labour and supplies available.	Medium	The project may require additional labour and supplies due to increased complexity of the closure structure. Construction of the closure structure could cause an increase in project duration. It is possible that the project will be delayed by up to 1 month due to this issue.	Medium	Emergency
P-R-3	Mechanical Repair Team	+Refrigeration, ice storage growth, added labour and supplies?	Current labour, ice storage growth, added labour and supplies?	Medium	The project is heavily dependent on equipment which has been delivered.	Medium	Emergency
P-R-4	Building Repair Team	+Refrigeration, ice storage growth, added labour and supplies?	Current labour, ice storage growth, added labour and supplies?	Medium	The project is heavily dependent on equipment which has been delivered. There is a potential for equipment to fail during construction.	Medium	Emergency
P-R-5	0	+Refrigeration, ice storage growth, added labour and supplies?	Current labour, ice storage growth, added labour and supplies?	Medium	The project is heavily dependent on equipment which has been delivered.	Medium	Emergency
P-R-6	0	+Refrigeration, ice storage growth, added labour and supplies?	Current labour, ice storage growth, added labour and supplies?	Medium	The project is heavily dependent on equipment which has been delivered.	Medium	Emergency
P-R-7	0	+Refrigeration, ice storage growth, added labour and supplies?	Current labour, ice storage growth, added labour and supplies?	Medium	The project is heavily dependent on equipment which has been delivered.	Medium	Emergency
P-R-8	0	+Refrigeration, ice storage growth, added labour and supplies?	Current labour, ice storage growth, added labour and supplies?	Medium	The project is heavily dependent on equipment which has been delivered.	Medium	Emergency
P-R-9	0	+Refrigeration, ice storage growth, added labour and supplies?	Current labour, ice storage growth, added labour and supplies?	Medium	The project is heavily dependent on equipment which has been delivered.	Medium	Emergency
P-R-10	0	+Refrigeration, ice storage growth, added labour and supplies?	Current labour, ice storage growth, added labour and supplies?	Medium	The project is heavily dependent on equipment which has been delivered.	Medium	Emergency
P-R-11	0	+Refrigeration, ice storage growth, added labour and supplies?	Current labour, ice storage growth, added labour and supplies?	Medium	The project is heavily dependent on equipment which has been delivered.	Medium	Emergency
P-R-12	Refrigeration Construction Team	+Refrigeration, ice storage growth, added labour and supplies?	Current labour, ice storage growth, added labour and supplies?	Medium	The project is heavily dependent on equipment which has been delivered.	Medium	Emergency
P-R-13	Bracing + Engineering & Design Team	+Refrigeration, ice storage growth, added labour and supplies?	Current labour, ice storage growth, added labour and supplies?	Medium	The project is heavily dependent on equipment which has been delivered.	Medium	Emergency

PS-14	Construction Management • Potential for scope growth, added features and quantities?	Current restorations are sufficient to support current design.	The project is nearing completion and all potential reconstruction work has been identified.	Unlikely	Negligible	0
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Acquisition Strategy			Max Standardized Growth Rate	WPS
A.1.	Brand or Business Model	Contracting firm's established?	The CMO can either score 0 or 100 depending on whether the Acquisition Strategy is selected.	Estimate Standardized Growth Rate
A.2.	Opportunistically Picked	Contracting firm's established?	The CMO can either score 0 or 100 depending on whether the Acquisition Strategy is selected.	Estimate Standardized Growth Rate
A.3.	Established Business with Financial Resources	Contracting firm's established? The CMO assumes score 100 established.	Score of 100 indicating a systematic M&A acquisition strategy with financial resources.	200000 Marketing
A.4.	Building Brand Image	Contracting firm's established? Has no financial resources available.	Score of 100 indicating a systematic M&A acquisition strategy with no financial resources.	100000 Marketing
A.5.	0	Contracting firm's established?		Utility Responses
A.6.	0	Contracting firm's established?		Utility Responses
A.7.	0	Contracting firm's established?		Utility Responses
A.8.	0	Contracting firm's established?		Utility Responses
A.9.	0	Contracting firm's established?		Utility Responses
A.10.	0	Contracting firm's established?		Utility Responses
A.11.	0	Contracting firm's established?		Utility Responses
A.12.	Planning, Engineering, & Design	Contracting firm's established?	The acquisition (100%) has no impact.	Utility Responses

A.S.14	Construction Management	Contracting plan/firmly established?	The Action Plan Strategy has no effect.	Unlikely	Negligible	0

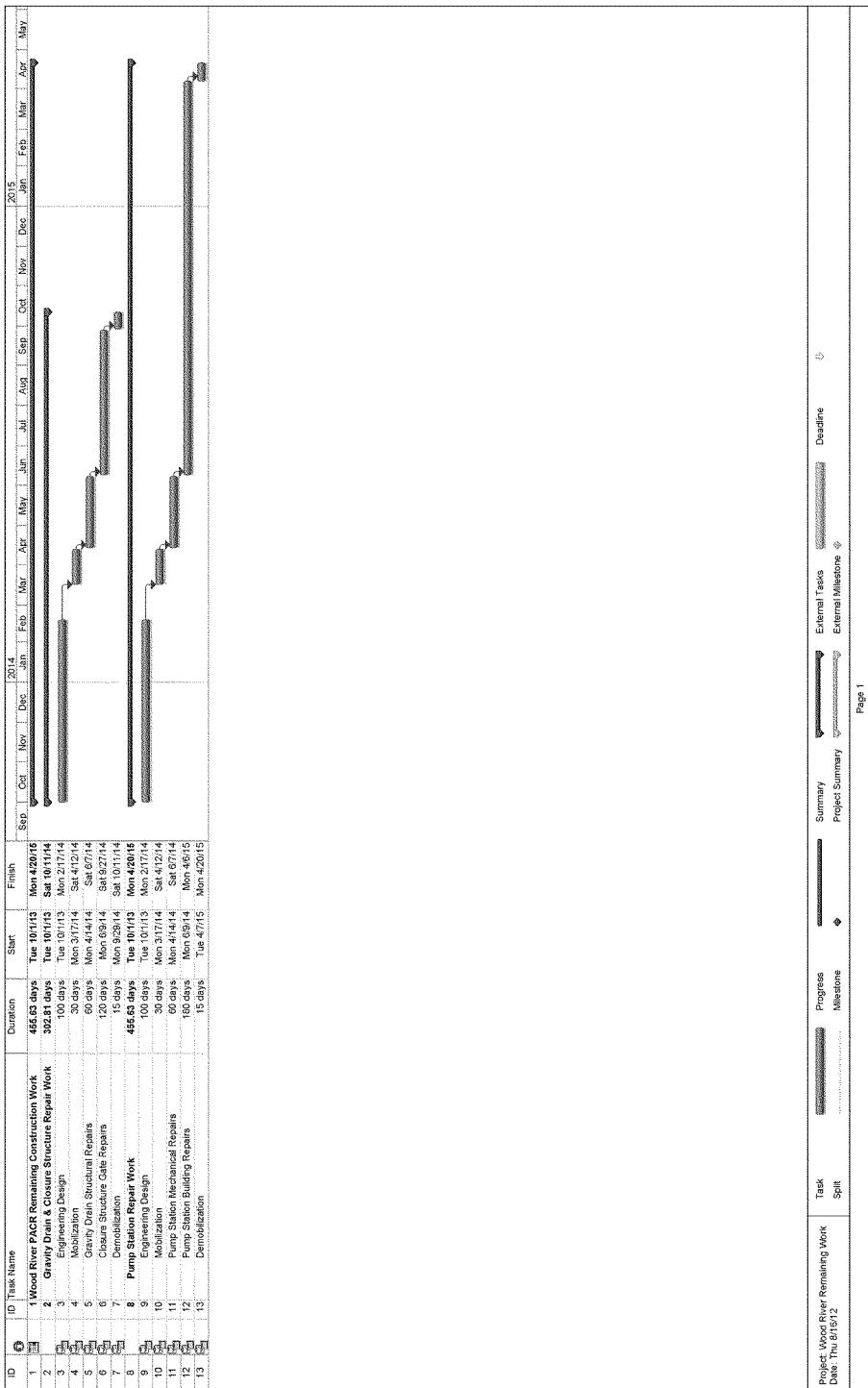
Sensitivity Elements			No. Sensitive Cells Identified
C1.0	GroundTruth Review Actions	Accident rate in North Western Scotland	105
C1.1	GroundTruth Review Actions	There is no accident in North Western Scotland	0
C2.0	Change Structural Rule	GroundTruth Review Actions	1
C2.1	Change Structural Rule	The change action is selected if and only if the new rule is more likely to lead to accident compared to the old rule	1
C3.0	Mechanic of Player Win	Accident rate in North Western Scotland	2
C3.1	Mechanic of Player Win	There is a positive review from mechanics	1
C4.0	Booking Status Actions	Accident rate in North Western Scotland	2
C4.1	Booking Status Actions	There is a positive review from booking status	1
C5.0	Accident rate in North Western Scotland	Accident rate in North Western Scotland	0
C5.1	Accident rate in North Western Scotland	There is a negative review from accident rate	0
C6.0	Accident rate in North Western Scotland	Accident rate in North Western Scotland	0
C6.1	Accident rate in North Western Scotland	There is a positive review from accident rate	0
C7.0	Accident rate in North Western Scotland	Accident rate in North Western Scotland	0
C7.1	Accident rate in North Western Scotland	There is a negative review from accident rate	0
C8.0	Accident rate in North Western Scotland	Accident rate in North Western Scotland	0
C8.1	Accident rate in North Western Scotland	There is a positive review from accident rate	0
C9.0	Permitting Condition	Accident rate in North Western Scotland	0
C9.1	Permitting Condition	There is a negative review from permitting condition	0
C10.0	Planning Engineering & Design	Accident rate in North Western Scotland	0
C10.1	Planning Engineering & Design	There is a positive review from planning engineering and design	0

		Quantities for Current Scope		Max Potential Cost Growth	
		• Level of confidence based on design and assumptions?	All remaining work is consistent with design and has been reviewed by a DDC & SDOE at review.	Unlikely	Negligible
O.1	Cash Out Repair Work	• Level of confidence based on design and assumptions?	All remaining work is consistent with design and has been reviewed by a DDC & SDOE at review.	Unlikely	Negligible
O.2	Closure Structure Repair Work	• Level of confidence based on design and assumptions?	All remaining work is consistent with design and has been reviewed by a DDC & SDOE at review.	Unlikely	Negligible
O.3	Maintenance Repair Work	• Level of confidence based on design and assumptions?	All remaining work is consistent with design and has been reviewed by a DDC & SDOE at review.	Unlikely	Negligible
O.4	Bearing Repair Work	• Probability for increased burdens due to loss of work or subsidence?	All remaining work is consistent with design and has been reviewed by a DDC & SDOE at review. Provided for increased quantities due to loss of end-of-life subsidence.	Possible	Marginal
O.5		• Level of confidence based on design and assumptions?		Unlikely	Marginal
O.6		• Level of confidence based on design and assumptions?		Unlikely	Negligible
O.7		• Level of confidence based on design and assumptions?		Unlikely	Negligible
O.8		• Level of confidence based on design and assumptions?		Unlikely	Negligible
O.9		• Level of confidence based on design and assumptions?		Unlikely	Negligible
O.10		• Level of confidence based on design and assumptions?		Unlikely	Negligible
O.11	Performing Construction Tasks	• Level of confidence based on design and assumptions?		Unlikely	Negligible
O.12	Construction Management	• Level of confidence based on design and assumptions?		Unlikely	Negligible
O.13	Planning, Engineering, & Design	• Level of confidence based on design and assumptions?		Unlikely	Negligible
O.14	Construction Management	• Level of confidence based on design and assumptions?		Unlikely	Negligible

Specialty/Fabrication or Equipment				Max Potential Cost Growth	50%
FE-1 Gravity Duct Glue Work	<ul style="list-style-type: none"> • Unusual parts, material or equipment manufactured or installed? 	No specialty equipment is used in construction.	Because no specialty equipment is used, there is little cost increase.	Unlikely	Negligible
FE-2 Ducture Structure Repair Work	<ul style="list-style-type: none"> • Unusual parts, material or equipment manufactured or installed? 	Same as site has and need to make sure that they can install.	In this case, there is also probability that new statement, the values may need to be standardized.	Unlikely	Slightest
FE-3 Manufacture Repair Work	<ul style="list-style-type: none"> • Unusual parts, material or equipment manufactured or installed? 	Same parts of the current plant that needs to be replaced may not be available.	If the parts of the plant are not available, they will have to be sourced, adding to the cost.	Unlikely	Slightest
FE-4 Building Repair in Work	<ul style="list-style-type: none"> • Unusual parts, material or equipment manufactured or installed? 	No special statement is used.	Same as existing equipment is used there is little cost increase.	Unlikely	Negligible
FE-5	<ul style="list-style-type: none"> • Unusual parts, material or equipment manufactured or installed? 			Unlikely	Moderate
FE-6	<ul style="list-style-type: none"> • Unusual parts, material or equipment manufactured or installed? 			Unlikely	Negligible
FE-7	<ul style="list-style-type: none"> • Unusual parts, material or equipment manufactured or installed? 			Unlikely	Negligible
FE-8	<ul style="list-style-type: none"> • Unusual parts, material or equipment manufactured or installed? 			Unlikely	Negligible
FE-9	<ul style="list-style-type: none"> • Unusual parts, material or equipment manufactured or installed? 			Unlikely	Negligible
FE-10	<ul style="list-style-type: none"> • Unusual parts, material or equipment manufactured or installed? 			Unlikely	Negligible
FE-11	<ul style="list-style-type: none"> • Unusual parts, material or equipment manufactured or installed? 			Unlikely	Negligible
FE-12 Planning Contracting	<ul style="list-style-type: none"> • Unusual parts, material or equipment manufactured or installed? 			Unlikely	Negligible
FE-13 Planning Engineering & Design	<ul style="list-style-type: none"> • Unusual parts, material or equipment manufactured or installed? 			Unlikely	Negligible
FE-14 Construction Management	<ul style="list-style-type: none"> • Unusual parts, material or equipment manufactured or installed? 			Unlikely	Negligible

Reference		Cost Estimate Assumptions		Net Present Cost (NPV)	
		Probability and number of key inputs?			
CT.1	Given Critical Player Risk	Probability and number of key inputs?			
CT.2	Given Strategic Reserve	Probability and number of key inputs?			
CT.3	Internal Business Unit	Probability and number of key inputs?			
CT.4	Internal Business Unit	Probability and number of key inputs?			
CT.5	Probability and number of key inputs?				
CT.6	Probability and number of key inputs?				
CT.7	Probability and number of key inputs?				
CT.8	Probability and number of key inputs?				
CT.9	Probability and number of key inputs?				
CT.10	Probability and number of key inputs?				
CT.11	Probability and number of key inputs?				
CT.12	Probability and number of key inputs?				
CT.13	Probability Engineering & Design	Probability and number of key inputs?			
CT.14	Construction Management	Probability and number of key inputs?			

External Project Risks			Max Potential Cost Growth	
			20%	20%
Ex-1	Grade Drain Repair Work	• Unanticipated variations in soil / geotechnical material?	Due to the lack of complexity of the remaining construction items to be completed, it is unlikely that there will be any external influences in this category.	Possible Marginal 1
Ex-2	Closure Structure Repair Work	• Potential for severe adverse weather?	Due to the lack of complexity of the remaining construction items to be completed, it is unlikely that there will be any external influences.	Possible Significant 2
Ex-3	Mechanical Repair Work	• Potential for severe adverse weather?	Due to the lack of complexity of the remaining construction items to be completed, it is unlikely that there will be any external influences.	Unlikely Negligible 0
Ex-4	Building Repair Work	• Potential for severe adverse weather?	Due to the lack of complexity of the remaining construction items to be completed, it is unlikely that there will be any external influences.	Unlikely Negligible 0
Ex-5	0	• Potential for severe adverse weather?		Unlikely Marginal 0
Ex-6	0	• Potential for severe adverse weather?		Unlikely Negligible 0
Ex-7	0	• Potential for severe adverse weather?		Unlikely Negligible 0
Ex-8	0	• Potential for severe adverse weather?		Unlikely Negligible 0
Ex-9	0	• Potential for severe adverse weather?		Unlikely Negligible 0
Ex-10	0	• Potential for severe adverse weather?		Unlikely Negligible 0
Ex-11	0	• Potential for severe adverse weather?		Unlikely Negligible 0
Ex-12	Permitting Construction Items	• Potential for severe adverse weather?		Unlikely Negligible 0
Ex-13	Planning, Engineering & Design	• Potential for severe adverse weather?		Unlikely Negligible 0
Ex-14	Construction Management	• Potential for severe adverse weather?		Unlikely Negligible 0



Appendix C Computation of 902 Limit

Maximum Project Cost Calculation – Wood River Reconstruction, IL

This 902 Maximum Project Cost calculation was performed for the Wood River Reconstruction, IL project authorized in WRDA 2007. The 902 estimate was prepared using the certified 902 cost limit tool released in 2010 titled 902_Cap_Calculation_Tool_locked_Sept2010_Final.xlsx

This report was prepared on 23 August 2011 by USACE St Paul District Economics Section.
Point of contact for this report is Dan Linkowski MVS 314.331.8284.

Table G-4 (ER 1105-2-100 Appendix G)
MAXIMUM COST INCLUDING INFLATION THROUGH CONSTRUCTION
Thousands Dollars
(000's)

FY 12	-	
Line 1		
a.	Current Project estimate at current price levels:	\$25,672
b.	Current project estimate, inflated through construction:	\$25,802
c.	Ratio: Line 1b / line 1a	1.0051
d.	Authorized cost at current price levels: (Column (h) plus (i) from table G-3)	\$19,870
e.	Authorized cost, inflated through construction: (Line c x Line d)	\$19,970
Line 2		
	Cost of modifications required by law:	\$0
Line 3		
	20 percent of authorized cost: .20 x (table G-3, columns (f) + (g))	\$3,444
Line 4		
	Maximum cost limited by section 902: Line 1e + line 2 + line 3	\$23,414

REQUIRED DATA

- 1 – ALL pertinent legislation pertaining to the project
- 2 – The latest version of EM 1110-2-1304 Civil Works Construction Cost Index System (Usually updated in March and September of each fiscal year)
- 3 – The appropriate Real Estate Index (See ER 1105-2-100 Appendix G)
Most Common real Estate Index is *Unadjusted Consumer Price Index – All Urban Consumers – US City Average*
- 4 – The cost schedule of expenditures that have been expended (PED, Post Authorization Planning Studies, Construction, Real Estate, etc.)
- 5 – The Total Current Project Cost (Current FY dollars)
- 6 – The total fully funded cost of the project (inflated through the mid-point of construction)

DIRECTIONS AND INPUTS

STEP 1: Input the appropriate data in the yellow highlighted cells below (see user manual for explanation of inputs):

Project Name:	Wood River Reconstruction, IL
Date Prepared:	8/23/2012

Total Authorized Cost:	\$17,220
Authorized Cost for Construction	\$17,220
Authorized Cost for Real Estate	\$0
Date of Authorized Price Level:	10/1/2006
First Year of Expenditure:	10/1/2008

Current Cost Estimate (At Current price level):	\$25,672
Current Cost for Construction (Construction Portion of Current Cost):	\$25,672
Current Cost for Real Estate (Real Estate Portion of Current Cost):	\$0
Current Fully Funded Cost Estimate (Inflated thru mid-point of Construction):	\$25,802
Date of Current Price Level:	10/1/2012

Costs of modifications specified by Law	\$0
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Project Purpose:	11 - LEVEES & FLOODWALLS
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Date of EM 1110-2-1304 Used	4/24/2012
Type of CWCCIS Used	Yearly Purpose
Date of Real Estate Index Used	2012
Type of Real Estate Index Used	Rent of Primary Residence - National

INDEX INPUTS		
Fiscal Year	CWCCIS Index	Rent-Residential Index
FY 07	685.568	228.000
FY 08	722.130	237.135
FY 09	718.303	245.855
FY 10	737.970	248.888
FY 11	769.255	249.618
FY 12	792.670	255.651
FY 13	806.305	258.184

EXPENDITURE INPUTS		
Fiscal Year	Construction Expenditures	Real Estate Expenditures
FY 09	\$215.99	\$0.00
FY 10	\$2,457.76	\$0.00
FY 11	\$6,193.59	\$0.00
FY 12	\$12,902.00	\$0.00